

Minnesota Multiphasic Personality Inventory – 2 Correlates and Predictors of Machiavellianism

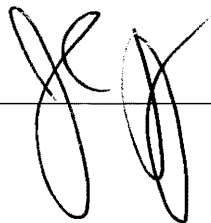
An Honors Thesis (HONRS 499)

by

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Abstract

The current study investigated the ability of scales related to antisocial behavior on the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) to relate to and to predict scores on the Machiavellianism Scale (MACH-IV). One hundred and seven participants, 51 men and 56 women, from a Midwestern university (ages 18 to 36, mean = 19.5, SD = 2.87) completed the MMPI-2 and the MACH-IV, in addition to other measures, as part of a larger study. Relations between MMPI-2 scales and scores on the MACH-IV were examined using zero-order correlations. Significantly correlated scales were entered into an exploratory stepwise regression analysis in order to determine the most parsimonious set of predictors of MACH-IV scores. Results indicated Machiavellian traits as measured by the MACH-IV could be best accounted for by MMPI-2 Content Scales ASP (Antisocial Practices) and ANG (Anger). These results suggest people with high scores on the MACH-IV may be more likely to engage in anti-social behaviors and have feelings of anger and hostility toward others.

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Minnesota Multiphasic Personality Inventory – 2

Correlates and Predictors of Machiavellianism

In the area of personality and psychopathology testing, test validity is one of the chief concerns and most important issues facing test administrators. The vast numbers of personality inventories and measures in existence enable practically any aspect of personality to be measured, but it is important to establish that the test is measuring what it is purported to assess. Currently, Dorfman and Leonard (2001) report that the most widely used personality inventory is the Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher et al., 2001). The MMPI-2 is a revised and updated version of the original MMPI, which was developed by Starke Hathaway and J.C. McKinley in 1943, and is supported by an extensive research base (Dorfman & Leonard, 2001). The MMPI-2 measures a variety of psychological, personality, social and behavioral difficulties, and contains scales that also assess a test-taker's response style (e.g., over- or under-reporting symptomatology, random responding). Within the various constructs assessed by this inventory are several scales devoted to measuring behaviors and attitudes considered to be of an antisocial nature.

Despite the MMPI-2's widespread use, it is important to continue to validate and explore the meaning of scale scores. One method of supporting the validity of a measure or scale is to compare it with another established inventory. The Machiavellianism scale (Christie & Geis, 1970) is one such personality inventory. Drawing from the theories presented in Niccolo Machiavelli's literary work *The Prince*, Christie & Geis designed the Machiavellianism (MACH) scale to measure the level of manipulation an individual uses in order to control his or her relationships with others. It is one of the most widely utilized measures on the use of manipulative behavior in interpersonal relationships (Christie & Geis, 1970), which is often

considered to be part of a broader spectrum of antisocial behavior. This spectrum includes psychopathy, which is described as remorselessly manipulative behavior, hidden beneath superficial charm or guile (Glass & Newman, 2006).

In a study by Geis and Moon (1981), individuals with high and low MACH scale scores were assessed on deceptive ability. Sixty-four male and female undergraduates, who had been identified by the MACH scale as “low” or “high” in Machiavellian traits, were videotaped while attempting to be deceptive, or “lie”, about a fictional scenario. A second group of 64 undergraduates subsequently viewed the tapes and identified those from the first group of high and low Mach participants as lying or telling the truth. The results revealed that judges were more likely to believe the deceptiveness of those with high MACH scores than those with low scores. Furthermore, it was demonstrated that individuals with high MACH scores were more difficult for the judges to discriminate as truthful or deceptive than those with low scores (Geis & Moon, 1981).

McHoskey, Worzel, and Szyarto (1998) investigated whether Machiavellianism (as assessed by a revised version of the MACH, the MACH-IV) and psychopathy were similar enough to be collapsed into one category based on a dimensional view of personality. Furthermore, the authors made a distinction between *primary* and *secondary* psychopathy, with primary psychopathy being characterized by antisocial behaviors motivated by the dispositions associated with psychopathy (e.g., remorselessness, lack of empathy) and secondary psychopathy described as similar to primary at the behavioral level, but differing in motivation (e.g., personality disorder). For the study, 99 male and female undergraduate students completed questionnaires on primary and secondary psychopathology and the MACH-IV. The authors found a positive association between the MACH-IV and both primary and secondary psychopathy, leading

McHoskey et al. (1998), to suggest that the MACH-IV could be considered as a global measure of psychopathy in non-institutionalized populations. However, while McHoskey et al. suggest that MACH-IV scores could be a “global” measure of psychopathy, there are several components to psychopathy (e.g., manipulateness, callousness, lack of empathy, and antisocial behaviors, to name a few), none of which separately would lead to labeling a person as a “psychopath”, thus suggesting that the Machiavellianism Scale is still possibly viable as a separate measure of manipulateness, as it measures only one distinct component of psychopathy.

Prior to the development of the MMPI-2, selected scales of the MMPI (specifically Clinical Scale 4 (Psychopathic Deviate, *Pd*)) have been the focus of a majority of the research literature in the areas of antisocial behavior and psychopathy (Forgac & Michaels, 1982; Elion & Megargee, 1975). In the above mentioned studies, findings include a significant association between criminality and psychopathy as measured by the MMPI’s Clinical Scale 4 (*Pd*) (Forgac & Michaels, 1982; Elion & Megargee, 1975). Since the MMPI-2 (an updated and re-normed version of the MMPI) was introduced in 1989, there have been several scales that have been added to the test that are also designed to assess for antisocial behaviors and attitudes, including Content Scale Antisocial Practices (ASP), Personality Psychopathology-5 Scales Aggression (AGGR) and Disconstraint (DISC), and Restructured Clinical Scale 4 (RC4).

The Content Scales were developed to help clarify elevations on the original MMPI scales by focusing on more specific areas representative of problems (Dorfman & Leonard, 2001). The construct validity of the ASP Content Scale and its differences from Clinical Scale 4 were investigated in a series of studies reported by Lilienfeld (1996). Three separate studies were conducted using undergraduate participants ($N = 95, 110, \text{ and } 100$). ASP and Clinical Scale 4 (*Pd*) were administered to the participants, as well as several other corroborating personality

measures. In all three of the studies, ASP was found to be moderately to highly correlated with global indices of psychopathy as well as Antisocial Personality Disorder (as identified through interviews, self-report, and observer ratings), and demonstrated discriminant validity from other personality disorders (Lilienfeld, 1996). Furthermore, ASP was found to be significantly correlated with the Psychopathic Personality Inventory (PPI) subscale Machiavellian Egocentricity, as well as other psychopathic traits. In two of the three studies, ASP was found to be more highly correlated with the Machiavellian Egocentricity scale compared to Clinical Scale 4 (*Pd*).

The Personality Psychopathology - Five (PSY-5; Harkness, McNulty, & Ben-Porath, 1995) constructs were developed from analyses of personality disorders listed in the revised 3rd edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; American Psychological Association, 1987) and based on a dimensional model of personality psychopathology. Two of the MMPI-2 PSY-5 scales, AGGR and DISC, are conceptually related to antisocial behavior and psychopathic personality traits. The Aggressiveness (AGGR) scale is a measure of exaggerated self-importance, dominant behavior, and physical aggression (Sellbom, Ben-Porath, Lilienfeld, Patrick, & Graham, 2005). The Disconstraint (DISC) scale measures impulsivity/control, harm avoidance, and moral traditionalism (Harkness, McNulty, & Ben-Porath, 1995). Recent studies have included the scales in studies of psychopathic personality traits (Sellbom, Ben-Porath, Lilienfeld, Patrick, & Graham, 2005; Egger, De Mey, Derksen, & van der Staak, 2003).

The recently developed MMPI-2 Restructured (RC) scales (Tellegen et al., 2003), which were developed to increase the convergent and discriminant validity of the original MMPI-2 Clinical scales, may also be useful in measuring antisocial behavior. Sellbom and colleagues

(2005) include the RC and other MMPI-2 scales (i.e., Clinical, Content, and PSY-5) in a study of psychopathic personality traits. The MMPI-2 was administered to a sample of college students ($N = 281$) along with the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996). The MMPI-2 RC4 and RC9 scales, along with 14 other MMPI-2 scales conceptually related to the construct of psychopathy (Clinical Scales 2, 4, 7, and 9; RC Scales 2, 4, 7, and 9; Content Scales ASP and FRS, PSY-5 Scales AGGR, DISC, INTR, and NEGE) were compared to total scores on the PPI as well as its two factors (i.e., affective-interpersonal and social deviance). The study found that the conceptually related MMPI-2 scales were related to scores on the PPI, and that the RC scales (specifically, RC2, RC4, RC7, and RC9) produced the most parsimonious assessment of psychopathic personality traits, with differing models depending upon which aspect of psychopathy (as measured by the PPI) was being assessed (i.e., total score, emotional-interpersonal, or social deviance).

The aforementioned studies all investigated the ability of various scales of the MMPI-2 to assess the global construct of psychopathic personality traits and behaviors. The current study examines an aspect of psychopathy which has yet to be specifically investigated with the MMPI-2, in other words, the relationship between the construct of manipulateness, as measured by the MACH-IV, and conceptually related scales of the MMPI-2. Thus, the objective of the current study is to determine the ability of the selected MMPI-2 scales to relate to and to predict scores on the MACH-IV.

Method

Participants

Participants in the current study included 107 undergraduate students, 51 men and 56 women, ages 18 to 36 (mean=19.5, $SD = 2.869$), enrolled in an introductory psychology course at

a medium-sized Midwestern university. From the original sample, 99 (92.5%) participants identified themselves as Caucasian, four (3.7%) as African American, and four (3.7%) identified as “other” or did not specify an ethnicity.

Five participants were eliminated from the study due to producing invalid MMP-2 test results. The following criteria (recommended by the test authors) were used to identify and remove invalid MMPI-2 test results: T Score > 80 on TRIN, VRIN or L; T Score > 100 on F, FB, or Fp; and/or K > 80. There were no invalid MACH-IV profiles (defined here as not responding to 10% or more of the items).

There was no difference on gender between groups; however, there were significant differences between valid and invalid groups in terms of age and ethnicity. The mean age of participants who produced invalid profiles was significantly older than those of valid profiles ($t(105) = -2.368, p \leq .02$). Ethnically speaking, African Americans and those who identified as other or did not identify their ethnicity were more likely to produce invalid profiles than Caucasians participants, $\chi^2(2, N = 102) = 8.020, p < .05$. However, this difference is most likely a result of the relatively low numbers of ethnic minorities participating in the study, which would cause any differences to become statistically significant, while not necessarily being clinically meaningful.

Of the remaining 102 participants, 49 were male and 53 were female, ages 18 to 36 years ($M = 19.5, SD = 2.87$). Ethnically speaking, 96 (94.2%) identified as Caucasian, three (2.9%) as African American (2.9%), and three (2.9%) either reported as Other or did not identify their ethnicity.

Measures

MMPI-2. The MMPI-2 consists of 567 True and False items designed to assess a broad range of patterns in personality and psychological functioning. There are also several scales included to measure cooperation, and test-taking attitude. We examined 10 of the MMPI-2 scales conceptually related to anti-social behaviors and practices in order to determine the ability of those scales to relate to and to predict scores on the MACH-IV. A list of the MMPI-2 scales included in the current study can be found in Table 1. For further information regarding the psychometric characteristics of these scales, the MMPI-2 manual (Butcher et al., 2001) and RC scale monograph (Tellegen et al., 2003) are excellent sources, providing internal consistencies, test-retest reliabilities, and other relevant statistical information.

MACH-IV. The Machiavellianism IV scale (MACH-IV; Christie & Geis, 1970) is intended to measure of manipulation employed in interpersonal relationships, including interpersonal tactics, views of human nature, and abstract or generalized morality. It consists of 20 items that are rated on a 6-point Likert scale ranging from -3 (“Disagree Strongly”) to +3 (“Agree Strongly”).

Procedure

Computerized versions of the MMPI-2 and the MACH-IV were completed by participants (as part of a larger study) in a single testing session. The administration of the MMPI-2 and MACH-IV (as well as other criterion measures) was counterbalanced across participants to control for order effects. Scripted oral instructions were read to the participants, including a statement that they were free to discontinue at any time without repercussions and to only answer questions which they felt comfortable answering. Participants were also assured of

complete anonymity. Each student received an informed consent form before completing the measures and received course credit in exchange for participation.

Results

Zero-order correlations were examined between the conceptually related MMPI-2 scales and the MACH-IV total score. Alpha level was adjusted utilizing a Bonferroni correction to .005 (.05 divided by 10) to reduce the possibility of a Type I error. Correlations between the MMPI-2 scales and MACH-IV total scores are reported in Table 1. Eight of the 10 selected MMPI-2 scales exhibited significant correlations after the Bonferroni correction with the MACH-IV total score, specifically, Scale 9, ANG, CYN, ASP, DISC, RC3, RC4, and RC9.

Because so many of the selected scales were found to correlate significantly with the MACH-IV total score, a stepwise statistical regression was performed to determine which scales on the MMPI-2 would be most useful in predicting MACH-IV scores. Of those included, only two MMPI-2 scales were found to be statistically significant. The content scales ASP and ANG were found to account for 39.9% of the variance in MACH-IV total scores ($F(2, 99) = 32.86, p \leq .001$).

Discussion

The goal of the current study was to explore the ability of scales related to antisocial behavior on the MMPI-2 to relate to and to predict scores MACH-IV, a measure of interpersonal manipulation. The results of the correlational statistics for MMPI-2 scales and MACH-IV scores are very promising. Several of the scales conceptually related to antisocial behaviors on the MMPI-2 were significantly related to total scores on the MACH-IV. This finding suggests that the MMPI-2 scales under investigation were picking up on antisocial traits, as measured by the MACH-IV scales, as was hypothesized. The results of the regression analysis statistics results

were able to narrow down the MMPI-2 scales accounting for MACH-IV scores most effectively to ASP and ANG. This suggests that people with Machiavellian traits may be more likely to engage in anti-social behaviors and have feelings of anger and hostility toward others.

Unlike the implication of the McHoskey, et al. (1998) study—that the MACH-IV could be considered as a global measure of psychopathy—the current study suggests an alternative implication of the MACH-IV by extending upon the results of the Sellbom et al. (2005) study discussed earlier. In the Sellbom et al. (2005) study, psychopathic behavior and traits as measured by the PPI were best predicted by selected RC scales (i.e., RC2, RC4, RC7 and RC9). Furthermore, in the Sellbom et al. (2005) study, the predictive models varied slightly, depending upon which aspect of psychopathy were being explored (i.e., the total PPI score or the PPI factors affective-interpersonal factor and social deviance).

Interestingly, the social deviance factor of the PPI contains a Machiavellian component (similar to that assessed by the MACH-IV), but also additional components related to impulsivity, non-planning, and blame externalization. Thus, Sellbom et al.'s (2005) predictive model contained MMPI-2 scales related to several of these constructs (i.e., RC2, RC4 and RC9). Comparatively speaking, the present study assessed only the Machiavellian aspect of this scale, and found a somewhat different set of predictors (i.e., ASP and ANG). While the present study's predictor set is conceptually similar to that found by Sellbom et al.'s (2005) for social deviance, each set of scales have unique (as well as shared meanings), suggesting that Machiavellianism is a unique component of psychopathy, unlike the conclusion reached by McHoskey et al. (1998) (i.e., that Machiavellianism and psychopathy are equivocal). This suggests that the MACH-IV Scale is useful as a separate measure of manipulateness, but is still related to the larger construct of psychopathy.

The limitations of the current study included small sample size and limited diversity in the sample. With only 102 participants in the final sample, generalizability of the results is diminished. Furthermore, the lack of minority participation in the current study produces further limitations on the results ability to apply to individuals of differing racial/ethnic background from the included participants. As a result of so few minorities taking part in the current study ($N = 6$), a greater likelihood of minorities producing invalid profiles was found simply because a single invalid profile in such a small sample could greatly skew the resulting statistics. Finally, the fact that participants in this study were recruited solely from a college population also limits the generalizability of the results to the population at large, as well as the fact the only one measure of Machiavellianism was utilized in the current study. Further research on the ability of the MMPI-2 to relate to and predict Machiavellianistic traits would benefit from using additional measures in larger samples, including more diverse populations, as well as forensic samples, where such characteristics are more prevalent.

Based upon the results of this study, the MMPI-2 ASP and ANG were highly effective at predicting scores on the MACH-IV, accounting for nearly 40% of the variance in MACH-IV scores. Overall, scales related to antisocial practices on the MMPI-2 were significantly related to Machiavellianism. Therefore, it appears that the MMPI-2, and specifically the ASP and ANG scales, is able to relate to and predict scores on a measure of Machiavellianistic traits and characteristics (i.e, the MACH-IV). However, further research is necessary to expand upon the findings of the current study.

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Table 1

Correlations Between MMPI-2 Scales and MACH-IV Total Scores

MMPI-2 Scales		MACH-IV Total
Clinical Scales		
	4 (<i>Pd</i> , Psychopathic Deviate)	.282
	9 (MA, Mania)	.346*
Content Scales		
	ANG (Anger)	.485*
	CYN (Cynicism)	.508*
	ASP (Antisocial Practices)	.589*
Personality Psychopathology Five (PSY-5)		
	DISC (Disconstraint)	.385*
	AGGR (Aggressiveness)	.308
Restructured Clinical Scales		
	RC3 (CYN, Cynicism)	.528*
	RC4 (ASB, Antisocial Behaviors)	.359*
	RC9 (HPM, Hypomania)	.525*
Note: * $p < .005$		

Table 2
Regression Analysis Results for MMPI-2 Scales

MMPI-2 Scale				<i>F Test</i>		
	R	R²	R²_{adj}	F	df	p ≤
Antisocial Practices (ASP)	.589	.347	.340	53.136	1, 100	.005
Antisocial Practices (ASP), Anger (ANG)	.632	.399	.387	32.864	2, 99	.005